# SPEC® CFP2006 Result

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## Acer Incorporated

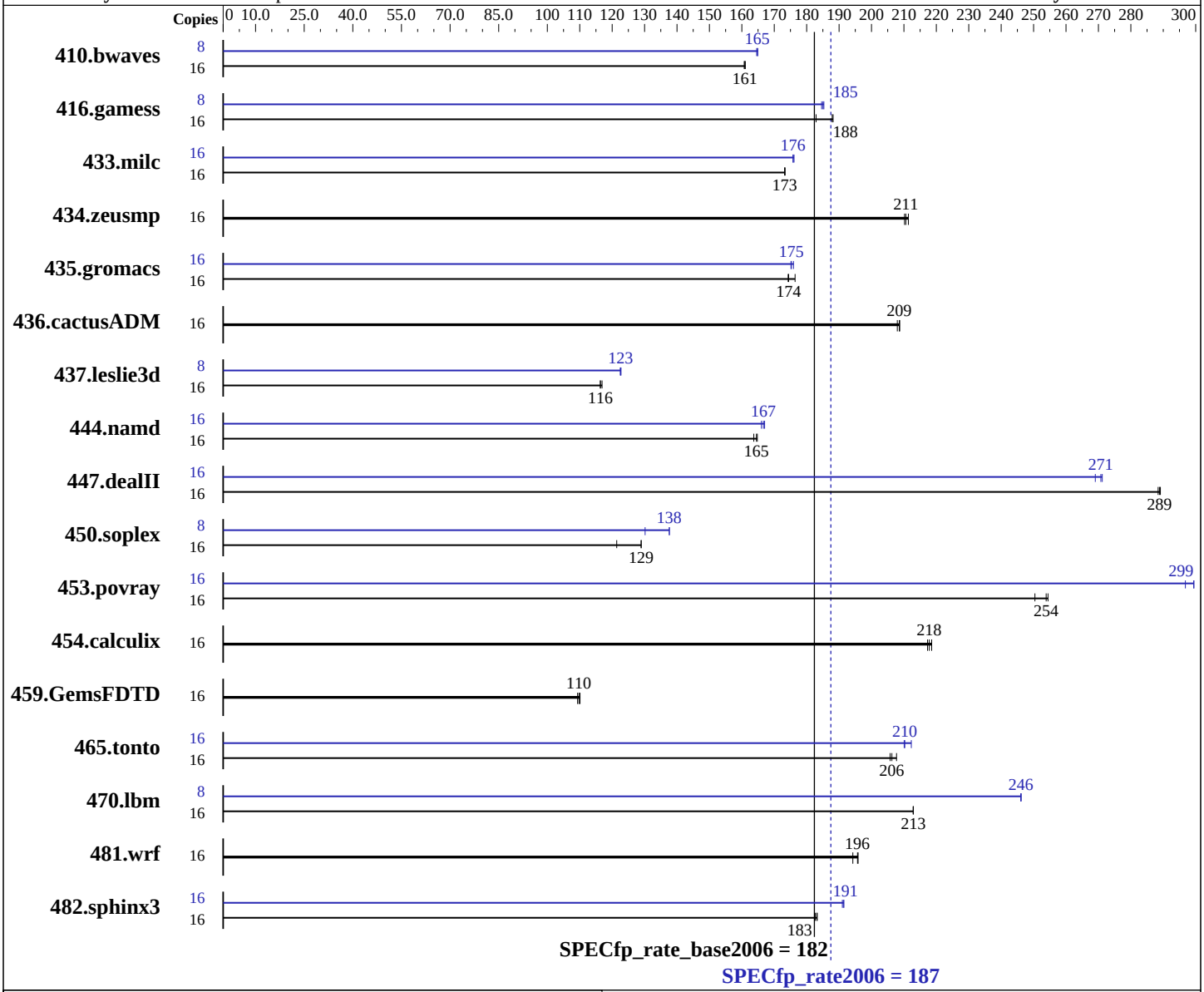
Gateway GW2000h-GW170h F1 (Intel Xeon E5640, 2.66 GHz)

SPECfp®_rate2006 = 187

SPECfp_rate_base2006 = 182

**CPU2006 license:** 97
**Test sponsor:** Acer Incorporated
**Tested by:** Acer Incorporated

**Test date:** Jul-2011
**Hardware Availability:** Aug-2010
**Software Availability:** Jan-2011




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5640 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 2.93 GHz |
| CPU MHz: | 2667 |
| FPU: | Integrated |
| CPU(s) enabled: | 8 cores, 2 chips, 4 cores/chip, 2 threads/core |
| CPU(s) orderable: | 1, 2 chips |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 256 KB I+D on chip per core |

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### Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 11 (x86_64) SP1, Kernel 2.6.32.12-0.7-default |
| Compiler: | Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64 Version 12.0.1.116 Build 20101116 |
| Auto Parallel: | No |
| File System: | ReiserFS |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 64-bit |

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L3 Cache: 12 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB (12 x 4 GB 2Rx8 PC3-10600R-9, ECC)
Disk Subsystem: 1 x 1000 GB SATA 7200RPM
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: None

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 16 | **1351** | **161** | 1350 | 161 | 1353 | 161 | 8 | 659 | 165 | **660** | **165** | 661 | 165 |
| 416.gamess | 16 | **1668** | **188** | 1713 | 183 | 1665 | 188 | 8 | **847** | **185** | 845 | 185 | 848 | 185 |
| 433.milc | 16 | 847 | 173 | 848 | 173 | **848** | **173** | 16 | 834 | 176 | **835** | **176** | 836 | 176 |
| 434.zeusmp | 16 | 689 | 211 | **691** | **211** | 693 | 210 | 16 | 689 | 211 | **691** | **211** | 693 | 210 |
| 435.gromacs | 16 | 648 | 176 | 655 | 174 | **655** | **174** | 16 | 649 | 176 | **652** | **175** | 652 | 175 |
| 436.cactusADM | 16 | 916 | 209 | **917** | **209** | 919 | 208 | 16 | 916 | 209 | **917** | **209** | 919 | 208 |
| 437.leslie3d | 16 | 1287 | 117 | **1292** | **116** | 1293 | 116 | 8 | 614 | 122 | **613** | **123** | 613 | 123 |
| 444.namd | 16 | **780** | **165** | 779 | 165 | 784 | 164 | 16 | 773 | 166 | **770** | **167** | 768 | 167 |
| 447.dealII | 16 | 635 | 288 | 633 | 289 | **634** | **289** | 16 | **676** | **271** | 680 | 269 | 675 | 271 |
| 450.soplex | 16 | 1099 | 121 | **1035** | **129** | 1035 | 129 | 8 | 513 | 130 | **485** | **138** | 485 | 138 |
| 453.povray | 16 | 340 | 250 | **335** | **254** | 335 | 254 | 16 | 284 | 299 | **284** | **299** | 287 | 297 |
| 454.calculix | 16 | 604 | 219 | **606** | **218** | 607 | 217 | 16 | 604 | 219 | **606** | **218** | 607 | 217 |
| 459.GemsFDTD | 16 | 1542 | 110 | 1553 | 109 | **1547** | **110** | 16 | 1542 | 110 | 1553 | 109 | **1547** | **110** |
| 465.tonto | 16 | 758 | 208 | **763** | **206** | 765 | 206 | 16 | **749** | **210** | 749 | 210 | 742 | 212 |
| 470.lbm | 16 | 1032 | 213 | **1033** | **213** | 1033 | 213 | 8 | **447** | **246** | 447 | 246 | 447 | 246 |
| 481.wrf | 16 | 912 | 196 | **913** | **196** | 920 | 194 | 16 | 912 | 196 | **913** | **196** | 920 | 194 |
| 482.sphinx3 | 16 | 1707 | 183 | **1703** | **183** | 1702 | 183 | 16 | 1633 | 191 | 1628 | 191 | **1630** | **191** |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Submit Notes

```
The config file option 'submit' was used.
 numactl was used to bind copies to the cores
```

## Operating System Notes

```
'ulimit -s unlimited' was used to set environment stack size
Large pages were disabled for this run
```

## Platform Notes

```
 BIOS Settings:
 Fan speed = full speed (Default = Balanced)
 Data Reuse = Disabled (Default = Enabled)
```

## General Notes

```
Binaries compiled on RHEL5.5

The Acer AW2000h-AW170h F1, Gateway GW2000h-GW170h F1, Acer AW2000ht-AW170ht F1  and Gateway  GW2000ht-GW170ht F1
are electronically equivalent.  This result was measured on Gateway GW2000ht-GW170ht F1.
```

## Base Compiler Invocation

C benchmarks:
```
icc   -m64
```

C++ benchmarks:
```
icpc  -m64
```

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
icc   -m64 ifort -m64
```

## Base Portability Flags

```
410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64
```

## Base Optimization Flags

C benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias
```

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## Base Optimization Flags (Continued)

Fortran benchmarks:
`-xSSE4.2 -ipo -O3 -no-prec-div -static`

Benchmarks using both Fortran and C:
`-xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias`

## Peak Compiler Invocation

C benchmarks (except as noted below):
`icc -m64`

482.sphinx3: `icc -m32`

C++ benchmarks (except as noted below):
`icpc -m64`

450.soplex: `icpc -m32`

Fortran benchmarks:
`ifort -m64`

Benchmarks using both Fortran and C:
`icc -m64 ifort -m64`

## Peak Portability Flags

410.bwaves: `-DSPEC_CPU_LP64`
416.gamess: `-DSPEC_CPU_LP64`
433.milc: `-DSPEC_CPU_LP64`
434.zeusmp: `-DSPEC_CPU_LP64`
435.gromacs: `-DSPEC_CPU_LP64 -nofor_main`
436.cactusADM: `-DSPEC_CPU_LP64 -nofor_main`
437.leslie3d: `-DSPEC_CPU_LP64`
444.namd: `-DSPEC_CPU_LP64`
447.dealII: `-DSPEC_CPU_LP64`
453.povray: `-DSPEC_CPU_LP64`
454.calculix: `-DSPEC_CPU_LP64 -nofor_main`
459.GemsFDTD: `-DSPEC_CPU_LP64`
465.tonto: `-DSPEC_CPU_LP64`
470.lbm: `-DSPEC_CPU_LP64`
481.wrf: `-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX`

# Peak Optimization Flags

C benchmarks:

433.milc: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32

470.lbm: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3 -ansi-alias -opt-prefetch -static -auto-ilp32

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2

C++ benchmarks:

444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -fno-alias -auto-ilp32

447.dealII: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32

450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3 -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

Fortran benchmarks:

410.bwaves: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -static

416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2 -inline-level=0 -scalar-rep- -static

434.zeusmp: basepeak = yes

437.leslie3d: -xSSE4.2 -ipo -O3 -no-prec-div -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

459.GemsFDTD: basepeak = yes

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto -inline-calloc -opt-malloc-options=3 -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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# Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

435.gromacs: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div`(pass 2) `-prof-use`(pass 2) `-opt-prefetch` `-static -auto-ilp32`

436.cactusADM: `basepeak = yes`

454.calculix: `basepeak = yes`

481.wrf: `basepeak = yes`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.html`
`http://www.spec.org/cpu2006/flags/Acer-Intel-Linux-Settings-flags.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml`
`http://www.spec.org/cpu2006/flags/Acer-Intel-Linux-Settings-flags.xml`


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